

REMARKS

The Examiner's comments together with the cited references have been carefully studied. Favorable reconsideration in view of the foregoing amendments and following remarks is respectfully requested.

Claims 1-4 and 7-10 are pending in the application. Claim 2 has been canceled. Claims 1, 4, 8, 9 and 10 herewith are amended. Claims presently active are claims 1 (amended), 3, 4 (amended), 7, and 8-10 (each as amended).

Claims 1-4 and 7-10 stand rejected under 35 U.S.C. 112, second paragraph. The rejection is traversed. Applicants respectfully made necessary amendments to the claims in accordance with the Examiner's comments in the Office Action. These amendments are deemed to now conform the claims to the requirements of the rules.

Claims 1, 3-4, 7, and 10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kimoto et al. in view of Nomura et al. The rejection is traversed. It is the conclusion of the Examiner that "It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Kimoto as such to have made the mold from cast-epoxy and thermosetting material...."

Applicants take the position that Kimoto et al., alone or in any legally permissible combination with Nomura et al., do not teach or suggest Applicants' invention as presently claimed. Applicants respectfully submit that Kimoto et al. do not teach non-metallic molds and mold cavities and provides no means of adjusting the pressure control valve to deal with different materials that would require different cavity pressure to create an acceptable part. If the teachings of Nomura et al., as suggested by the Examiner, for making an epoxy mold is combined with Kimoto et al., the combination still would not provide Applicants' unobvious and novel solution of protecting non-metallic molds from catastrophic failure. More particularly, there is no adjustable pressure valve provided by either of the references to accommodate molten material changes and any corresponding mold cavity pressure changes associated therewith. In contradistinction, Applicants' invention teaches the use of a novel and unobvious adjustable pressure valve

that is adjustable to accommodate molten resin material changes and any associated molten cavity pressure change in non-metallic molds. This feature prevents catastrophic failures of the mold cavity during high-speed injection molding using non-metallic molds. Support for this novel and unobvious feature can be found in Applicants' specification at page 1, line 31-32; at page 2, lines 1-3; and at page 6, lines 23-27.

In view thereof, it follows that the subject matter of the claims would not have been obvious of Kimoto et al. in view of Nomura et al. at the time the invention was made.

Claims 2 and 8-9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kimoto et al. modified by Nomura et al., and further in view of Valyi and Gardner. The rejection is traversed. It is the conclusion of the Examiner that "It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Kimoto and Nomura as such to have used a threaded screw arrangement to support the spring bias...."

Applicants respectfully submit that Kimoto et al., alone or in any legally permissible combination with Nomura et al and Valyi and Gardner, do not teach Applicants' invention as claimed. As Applicants indicated above, Kimoto and Nomura do not provide Applicants' novel and unobvious solution because, for instance, neither provides for the use of an adjustable pressure valve for accommodating molten resin material changes. Moreover, Applicants respectfully submit that neither Valyi nor Gardner, when combined with Kimoto et al. and Nomura et al., provide this important feature. Valyi is directed to compression molding in which a part is being molded from a hot slug of plastic being compressed in a cavity. This is a compression molding process that is characteristically a substantially slower molding process than injection molding of Applicants' invention. Moreover, the pressure valve of Valyi is designed to keep the material in the molten material in the mold cavity rather than releasing it to another path. Gardner is merely directed to a process for maintaining the pressure on a reservoir of molten plastic outside of the mold cavity as it cools after injection.

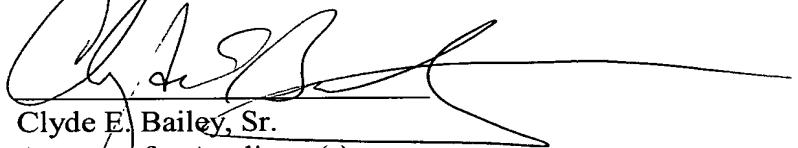
In view thereof, it follows that the subject matter of the claims would not have been obvious of Kimoto et al. modified by Nomura et al. and further in view of Valyi and Gardner at the time the invention was made.

In view of the foregoing remarks and amendment, the claims 1 (amended), 3, 4 (amended), 7, and 8-10 (each as amended), are now deemed allowable and such favorable action is courteously solicited.

Should the Examiner consider that additional amendments are necessary to place the application in condition for allowance, the favor is requested of a telephone call to the undersigned counsel for the purpose of discussing such amendments.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

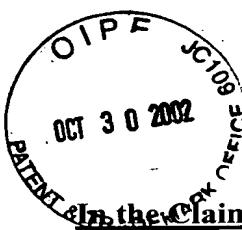
Respectfully submitted,



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Enclosures: (Version With Markings To Show Changes Made (pages 1-2)



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Version With Markings To Show Changes Made

In the Claims:

Claim 2 has been cancelled.

Claims 1, 4, 8, 9, and 10 have been amended as set forth below:

1. (Twice Amended) An injection molding apparatus for making a molded part, comprising:

an injection molding machine for injecting molten resin, said injection molding machine including a screw cylinder having a tip, a nozzle at said tip and a threaded screw advanceable in said screw cylinder for injecting molten resin from said nozzle, said injection molding machine further having structurally associated therewith a stationary portion and a movable mold portion forming a mold parting line therebetween;

a non-metallic injection mold comprising a cavity mold and a core mold forming a hollow therebetween for forming an injection molded product therein, said cavity mold being accessible by said stationary portion and said movable mold portion;

a first molten resin flow path extending from inside said screw cylinder to a terminal end of said hollow; and,

[a] an adjustable pressure relief valve to accommodate a change in molten resin material and a corresponding change in molding cavity pressure, said adjustable pressure relief valve being located on said mold parting line in an engaged state relative to said first molten resin flow path at said terminal end of said hollow and adapted to release said molten resin from said first molten resin flow path into a second molten resin flow path when pressure of said molten resin in said first molten resin flow path exceeds a predetermined value [and causes said molded part to be released from said cavity mold while said pressure relief valve is in a retracted state].

4. (Twice Amended) The apparatus recited in claim 1 wherein said adjustable pressure relief valve comprises a movable pin actuated by a spring bias, said movable pin being adapted for movement between a first position that blocks said molten resin when said pressure is less than said predetermined value; and, to a second position that releases said molten resin in said first molten resin flow

path into a second molten resin flow path in fluid communications with said first molten resin flow path thereby relieving pressure in said first molten resin flow path.

8. (Amended) The apparatus recited in claim 4 wherein said adjustable pressure relief valve is adjustable to said predetermined value by adjusting a threaded screw supporting said spring bias biasing said movable pin.

9. (Amended) The apparatus recited in claim 4 wherein said adjustable pressure relief valve is adjustable by changing said spring bias.

10. (Amended) The apparatus recited in 1 wherein said adjustable pressure relief valve is adapted to automatically reset after said pressure in said first molten resin flow path falls below said predetermined value.